STAT Unit 1 Review Name:_____

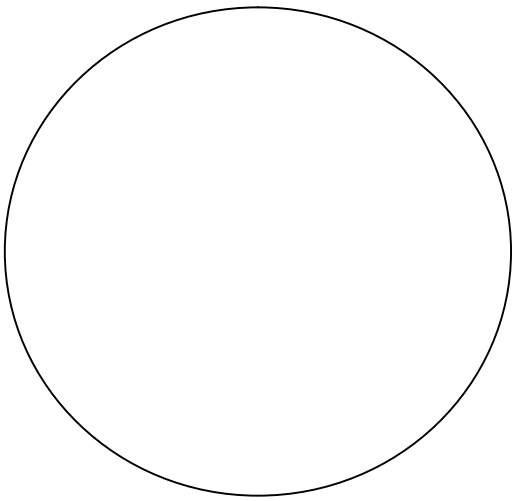
You will be asked some True/False and Multiple Choice questions. Look on pg.25, pg.93, and pg.177 for a list of important terms.

How People Get Their News The Brunswick Research Organization surveyed 50 randomly selected individuals and asked them the primary way they received the daily news. Their choices were via newspaper (N), television (T), radio (R), or Internet (I).

N	N	T	T	T	I	R	R	I	T	I	N
R	R	I	N	N	I	T	N	I	R	T	T
T	T	N	R	R	I	R	R	I	N	T	R
T	I	I	T	T	I	N	T	T	I	R	N
R	T										

1. Construct a **categorical frequency distribution** and a **pie graph**.

Class	Frequency	Percent	Degrees
N			
T			
I			
R			

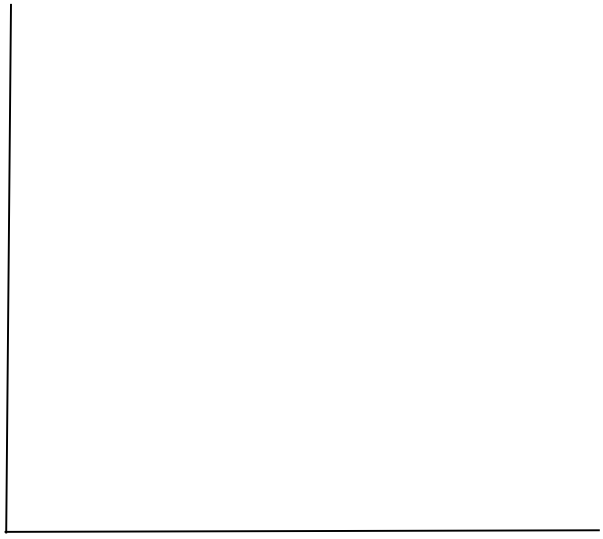


Cost of Bad Roads The data show the estimated added cost per vehicle use due to bad roads.

165	186	122	172	140	153	208	169	156	114	113	135
131	125	177	136	136	127	112	188	171	179	152	155
116	90	187	136	159	97	141	85	91	170	111	147
165	163	159	150								

2. Construct a **grouped frequency distribution** and a **histogram**.

Class Limits	Class Boundaries	Tally	Frequency	Cumulative Frequency
85-105				
106-126				
127-147				
148-168				
169-189				
190-210				



3. **Amusement Park Jobs** The data set shown here represents the number of hours that 25 part-time employees worked at the Sea Side Amusement Park during a randomly selected week in June.

16	25	18	39	25	17	29	14	37	22	18	12
23	32	35	24	26	20	19	25	26	38	38	33
29											

a. Construct a **stem and leaf plot** for data.

b. What type of graph does a stem and leaf plot represent when turned vertically?

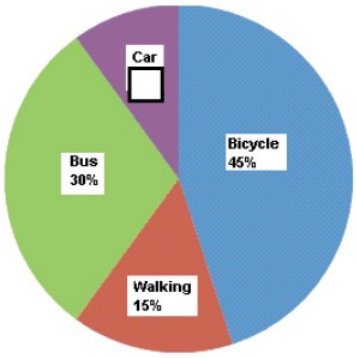
c. What is the range of the number of hours worked per week?

d. What is the median number of hours worked? Mode?

4. The pie graph represents modes of transportation.

a. What percent of students use a car as their mode of transportation?

b. If there are 900 students total, home many of them walk?



Types of Transportation

5. Bentley asked his classmates how many minutes they spent studying math each day, rounded to the nearest 5 minutes. Create a dot plot with the data from the classmates.

5, 10, 25, 20, 10, 20, 15, 30, 10, 35, 25, 5, 50, 15, 20, 20, 30, 15, 20, 25

a.How many classmates answered the question?

b. What is the median for the number of minutes spent studying for math?

c. How many students study for at least 30 minutes?

d. Comment of the approximate shape of the dot plot. Does there appear to be any unusual answers?

Radio Listeners The following data represent the number of listeners (in thousands) of 15 radio stations in the 6am to 9am time slot.

229	182	129	112	122	93	105	114
95	114	60	89	75	70	68	

6.) a.) Find the mean._____ b.)median._____ c.)mode._____ d.) range._____

e.) Which best describes the center of the number of listeners? Explain your reasoning.

Miles per Gallon The number of highway miles per gallon of the 10 worst vehicles in 1990 is shown.
12, 15, 13, 14, 15, 16, 17, 16, 17, 18

The number of highway miles per gallon of the 10 worst vehicles in 2010 is shown.
13, 17, 15, 14, 16, 16, 18, 17, 17, 19

7.) Find the standard deviation for both sets of data. Which data set is more variable? Explain.

8.) Both data sets have a mean of 165. One has a standard deviation of 1.6, and the other has a standard deviation of 2.4. By looking at the graphs, which is which? Explain your reasoning.

(a)

12	8 9
13	5 5 8
14	1 2
15	0 0 6 7
16	4 5 9
17	1 3 6 8
18	0 8 9
19	6
20	3 5 7

Key: 12|8 = 128

(b)

12	
13	1
14	2 3 5
15	0 4 5 6 8
16	1 1 2 3 3 3
17	1 5 8 8
18	2 3 4 5
19	0 2
20	

Key: 13|1 = 131

9.) The mean value of land and buildings per acre from a sample of farms is $2400, with a standard deviation of $450. Between what two values do about 95% of the data lie? (Assume the data set has a bell-shaped distribution.)

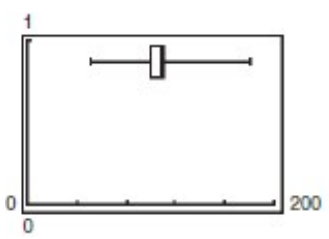
b.) The land and building values per acre for eight more farms are listed. Using the sample statistics above, determine which of the data values are unusual. Are any of the data values very unusual? Explain.
$3325, $1045, $2450, $3200, $3800, $1490, $1675, $2950

Test Scores A student scores 60 on a mathematics test that has a mean of 54 and a standard deviation of 3, and she scores 80 on a history test with a mean of 75 and a standard deviation of 2.
10.) Use z-scores to determine which test she performed better on.

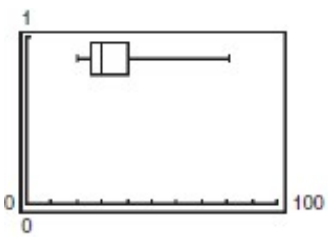
b.) Another student had a z-score of 1.8 of his history test. What was their exam score?

11.) Determine whether the approximate shape in the distribution of the box plot is symmetric, uniform, skewed to the left, skewed to the right or none of these. Justify your answer,

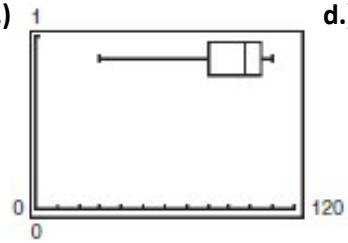
a.)



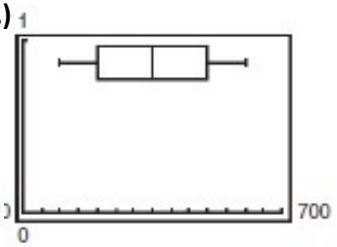
b.)



c.)



d.)



Previous Job Applicants The number of previous jobs held by each of 15 applicants is shown here.
6, 2, 5, 4, 3, 5, 16, 3, 5, 8, 4, 9, 8, 3, 4

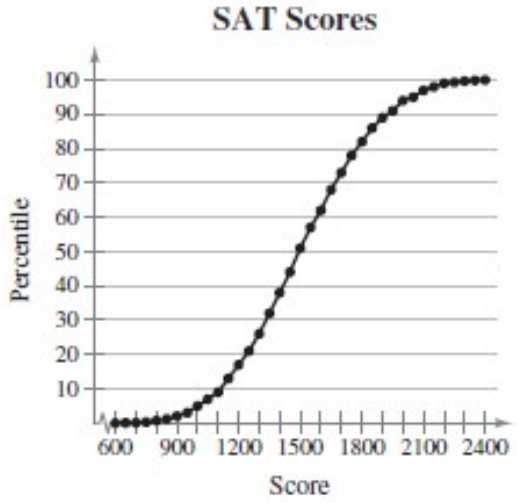
12.) a.) Construct a boxplot and comment on the nature of the distribution.
(Symmetric, uniform, left-skewed, right –skewed)

b.) Find the percentile rank for 6 hours.
c.) What value corresponds to the 80th percentile?
d.) Check the data set for outliers.

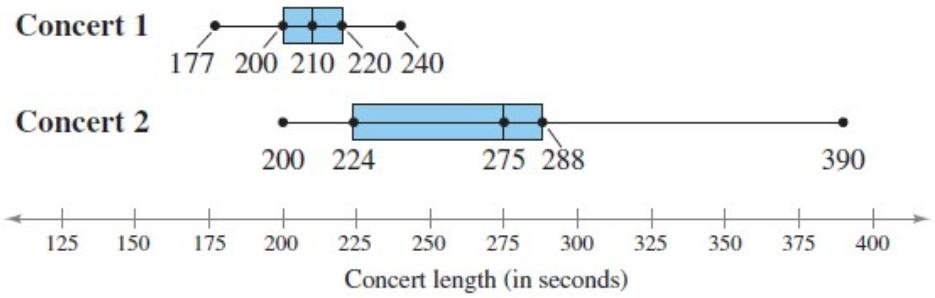
13. The ogive at the right represents the cumulative frequency distribution for SAT test scores of college-bound students in a recent year.

a. What test score represents the 62nd percentile?

b. How should you interpret this?



Song Lengths Side-by-side box-and-whisker plots can be used to compare two or more different data sets. Each box-and-whisker plot is drawn on the same number line to compare the data sets more easily. The lengths (in seconds) of songs played at two different concerts are shown.



14.) (a) Describe the shape of each distribution. Which concert has less variation in song lengths?

(b) Which distribution is more likely to have outliers? Explain your reasoning.

(c) Which concert do you think has a standard deviation of 16.3? Explain your reasoning.

(d) Can you determine which concert lasted longer? Explain.